LEVINE•FRICKE
ENGINEERS, HYDROGEOLOGISTS & APPLIED SCIENTISTS

August 15, 1994

LF 3015.94-01

Mr. Barney Chan, Hazardous Materials Specialist
Alameda County Health Care Services Agency
Department of Environmental Health
Division of Hazardous Materials
1131 Harbor Bay Parkway, Room 250
Alameda, California 94502-6577

Subject: Quarterly Ground-Water Monitoring Technical Report for Second Quarter 1994, 625 Hegenberger Road, Oakland, California

Dear Mr. Chan:

This ground-water monitoring technical report is submitted by Levine•Fricke, Inc. ("Levine•Fricke") on behalf of Diversified Investment and Management Corp., for the former fuel service station location at 625 Hegenberger Road, Oakland, California.

Summary of Field Activities

Levine•Fricke measured the depth to ground water and collected water samples from all five existing wells on June 30, 1994. Well locations are shown in Figure 1. The sampling procedure for each monitoring well involved measuring the initial water level, purging stagnant water from the well to allow collection of more representative formation water, and collecting water samples.

Before sampling, depth to water and total well depths from the top of the well casings were measured, using an electric water-level meter. Wells were purged and ground-water samples were collected using a clean Teflon bailer fitted with a new nylon rope. Field parameters (temperature, pH, specific conductance, and turbidity) were measured during purging and sampling. After approximately 3 to 4 casing volumes had been removed and field parameters had stabilized, the wells were sampled. A bailer blank was collected for monitoring well MW-12 and a field duplicate was collected for MW-11.

Ground-water samples were then slowly poured into laboratory-supplied bottles for analysis, labeled, and placed in an ice-chilled cooler for transportation to the analytical laboratory under standard chain-of-custody protocol. The ground-water samples were analyzed for benzene, toluene, ethylbenzene, and total xylenes (BTEX) using EPA Method 8020, for total petroleum hydrocarbons as gasoline (TPHg) using EPA Method

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5030 GCFID, for TPH as diesel and oil (TPHd and TPHo) using EPA Method 3510, and for total lead using EPA Method 6010. The samples were analyzed by American Environmental Network Laboratories of Pleasant Hill, California (AEN; formerly Quanteq), a state-certified laboratory.

Ground water sampled from all five wells was analyzed for BTEX, TPHg, TPHd, TPHo, and total lead. The bailer blank collected for MW-12 was analyzed for BTEX, TPHg, and total lead. The field duplicate collected from MW-11 was analyzed for BTEX, TPHg, and total lead.

Field Results

Ground-water elevation data are summarized in Table 1 and shown in Figure 1. The ground-water elevation contours and the ground-water flow direction are shown in Figure 1. A summary of field parameters measured during purging and sampling is presented in Table 2. Well sampling sheets are presented in Appendix A.

Ground-water elevations were determined for monitoring wells MW-8, MW-10, MW-11, and MW-12 using the available well casing elevations (Subsurface Consultants, boring logs dated April 25, 1988 through July 16, 1990). There was no available well casing elevation for monitoring well MW-16. Ground-water levels ranged from -1.48 to -1.69 feet above mean sea level (msl). These ground-water elevations have not varied significantly from the December 1993 levels (-1.49 to -1.84 feet above msl).

The general direction of the ground-water flow at the time of measurement was west to northwest under a horizontal hydraulic gradient of approximately 0.002 foot/foot (ft/ft). The general direction and gradient are the same as those for December 1993. However, some tidal fluctuation may result in varied orientation and gradient of shallow ground water. Previous measurements indicate that the ground-water flow was to the west in May 1993 (HartCrowser, letter to Barney Chan of Alameda County Department of Environmental Health, dated June 16, 1993, reporting ground-water sampling results).

Ground-Water Quality

A summary of ground-water quality data, including available historical data, is presented in Table 3. Laboratory analysis certificates are presented in Appendix B.

There has been no significant increase in BTEX, TPHg, or TPHd concentrations since the December 1993 monitoring event. For wells MW-8 and MW-11, most hydrocarbon concentrations have decreased slightly. BTEX and TPHg were detected in ground-water samples collected from monitoring wells MW-8 and MW-11. A low concentration of benzene (0.008 parts per million [ppm]) was detected in the ground water sampled from MW-16. Low concentrations of TPHo (0.4 to 1.1 ppm) were detected in samples from all five wells. TPHd and total lead were not detected in any of the samples. A slight hydrocarbon sheen was observed on the ground-water sample collected from MW-8. More data are needed to determine if the decrease in concentrations represents a possible trend.

Recommendations

Levine•Fricke recommends that quarterly ground-water monitoring should be continued, that the well casing for MW-16 should be surveyed, and that the potential for tidal influence should be evaluated, in accordance with the recommendations in the December 1993 Ground-Water Monitoring Technical Report. Levine•Fricke personnel are currently scheduled for a site visit on August 18, 1994, to survey the well casing for monitoring well MW-16, and measure the ground-water elevations several times during a six-hour period to determine if there is any tidal influence that affects the ground-water flow direction.

Levine•Fricke also recommends that Diversified Investment and Management Corp. pursue fuel leak case closure in accordance with applicable state and county regulations. In accordance with this effort, it is our opinion that the appropriate next step is collection of supplemental site soil and ground-water data. Levine•Fricke personnel are currently developing a supplemental site investigation work plan.

Please do not hesitate to call either of the undersigned if you have any questions.

Sincerely,

John Sturman, P.E., R.G.
Senior Geotechnical Engineer

Susan M. Henry, Ph.D.
Senior Project Engineer

Enclosures

cc: James Graeb, Diversified Investment and Management Corp.

TABLE 1
GROUND-WATER ELEVATIONS
DIVERSIFIED INVESTMENT
625 HEGENBERGER ROAD, OAKLAND, CALIFORNIA

Well ID	Well Elevation* (ft, msl)	30-Jun-94 Depth to Water (ft)	30-Jun-94 Ground-water Elevation (ft, msl)
MW-8	4.88	6.55	-1.67
MW-10	4.21	5.79	-1.58
MW-11	5.04	6.73	-1.69
MW-12	4.58	6.06	-1.48
MW-16	NA	7.28	NA

Data entered by MEK/26 Jul 94 Data proofed by SWM 8/9/94

Well elevation measured from top of casing.

ft - feet
ft, msl - feet above mean sea level

Well elevation levels obtained from Subsurface Consultants boring logs dated April 25, 1988 through July 16, 1990.

TABLE 2
WATER-QUALITY PARAMETERS MEASURED DURING SAMPLING
DIVERSIFIED INVESTMENT
625 HEGENBERGER ROAD, OAKLAND, CALIFORNIA

Well Number	Date Sampled	Well Volume** (gallons)	Volume Withdrawn (gallons)	Stabilized Temperature (deg. C)	Stabilized pH	Stabilized Specific Conductance (umhos/cm)	Qualitative Turbidity
MW-8	30-Jun-94	1.5	8.0	21.0	6.82	2,210	Turbid
MW-10	30-Jun-94	1.6	6.0	21.0	6.91	6,620	Turbid
MW-11	30-Jun-94	1.4	6.0	20.2	6.86	2,040	Turbid
MW-12	30-Jun-94	1.6	6.0	20.6	6.78	2,880	Moderately turbid
MW-16	30-Jun-94	1.1	4.5	21.8	6.80	6,200	Turbid

Data entered by MEK/26 Jul 94 Data proofed by SMA 8/9/94

** At time of monitoring.

TABLE 3
HISTORICAL WATER QUALITY
DIVERSIFIED INVESTMENT
625 HEGENBERGER ROAD, OAKLAND, CALIFORNIA
(concentrations reported in milligrams per liter [mg/l])

Sample ID	Date Sampled	Consultant/ Lab	Benzene	Toluene	Ethyl-benzene	Xylenes	TPHg	TPHd	TPHo	Total Lead
MW-8	*	SUB (1)	3.7	BDL	0.29	0.69	NA	NA	NA	BDL
	28-May-93	HC/SUP	6.4	0.028	0.16	0.036	19	1	NA	(5)
	22-Dec-93	LF/AEN (4)	16	5.9993 **	0.65	2.7	56	0.3	<0.2	<0.04
	30-Jun-94	LF/AEN (4)	11	4.8	2.2	8.2	41	<0.05	0.5	<0.04
MW-10	*	SUB	0.0017	BDL	BDL	BDL	NA	NA	NA	BDL
	28-May-93	HC/SUP	<0.0003	<0.0003	<0.0003	<0.0009	<0.05	0.054	NA	(5)
	22-Dec-93	LF/AEN	<0.0005	<0.0005	<0.0005	<0.002	<0.05	0.58	<0.2	<0.04
	30-Jun-94	LF/AEN	<0.0005	<0.0005	<0.0005	<0.002	<0.05	<0.05	0.6	<0.04
MW-11	*	SUB (2)	0.053	BDL	BDL	BDL	NA	NA	NA	0.21
	28-May-93	HC/SUP	0.45	0.0017	0.0015	0.0021	1.2	<0.05	NA	(5)
	22-Dec-93	LF/AEN	4.5	0.0383 **	0.012	0.043	9.2	0.53	<0.2	<0.04
	30-Jun-94	LF/AEN	1.5	0.013	0.69	1.2	8.8	<0.05	1.1	<0.04
duplicate	30-Jun-94	LF/AEN	1.7	0.014	0.75	1.3	8.7	<0.05	1.1	NA
MW-12	*	SUB	BDL	BDL	BDL	BDL	NA	NA	NA	BDL
	28-May-93	HC/SUP	<0.0003	<0.0003	<0.0003	<0.0009	<0.05	<0.05	NA	(5)
	22-Dec-93	LF/AEN	<0.0005	<0.0005	<0.0005	<0.002	0.05	0.3	<0.2	<0.04
	30-Jun-94	LF/AEN	<0.0005	<0.0005	<0.0005	<0.002	<0.05	<0.05	0.4	<0.04
MW-16	*	SUB (3)	BDL	BDL	BDL	BDL	NA	NA	NA	BDL
	28-May-93	HC/SUP	0.0028	<0.0003	0.0007	<0.0009	<0.05	<0.05	NA	(5)
	22-Dec-93	LF/AEN	<0.0005	<0.0005	<0.0005	<0.002	2.2	0.52	<0.2	<0.04
	30-Jun-94	LF/AEN	0.008	<0.0005	<0.0005	<0.002	<0.05	<0.05	0.9	<0.04
BLANKS										
Trip Blank	28-May-93	HC/SUP	<0.0003	<0.0003	<0.0003	<0.0009	<0.05	NA	NA	BDL
MW-12-BB	22-Dec-93	LF/AEN	<0.0005	0.0007	<0.0005	<0.002	<0.05	NA	NA	(5)
MW-16-BB	22-Dec-93	LF/AEN	NA	NA	NA	NA	NA	NA	NA	<0.04
MW-12-BB	30-Jun-94	LF/AEN	<0.0005	<0.0005	<0.0005	<0.002	<0.05	NA	NA	<0.04

Data entered by MEK/26 Jul 94 Data proofed by GMH QA/QC by GMH

* Date of ground-water sampling unavailable. Ground-water monitoring results accompanied well development and boring logs dated March 1990 through June 1990.

** Toluene detections for 22-Dec-93 were qualified using 0.0007 mg/l as a baseline. The bailer blank (MW-12-BB) contained toluene at 0.0007 mg/l.

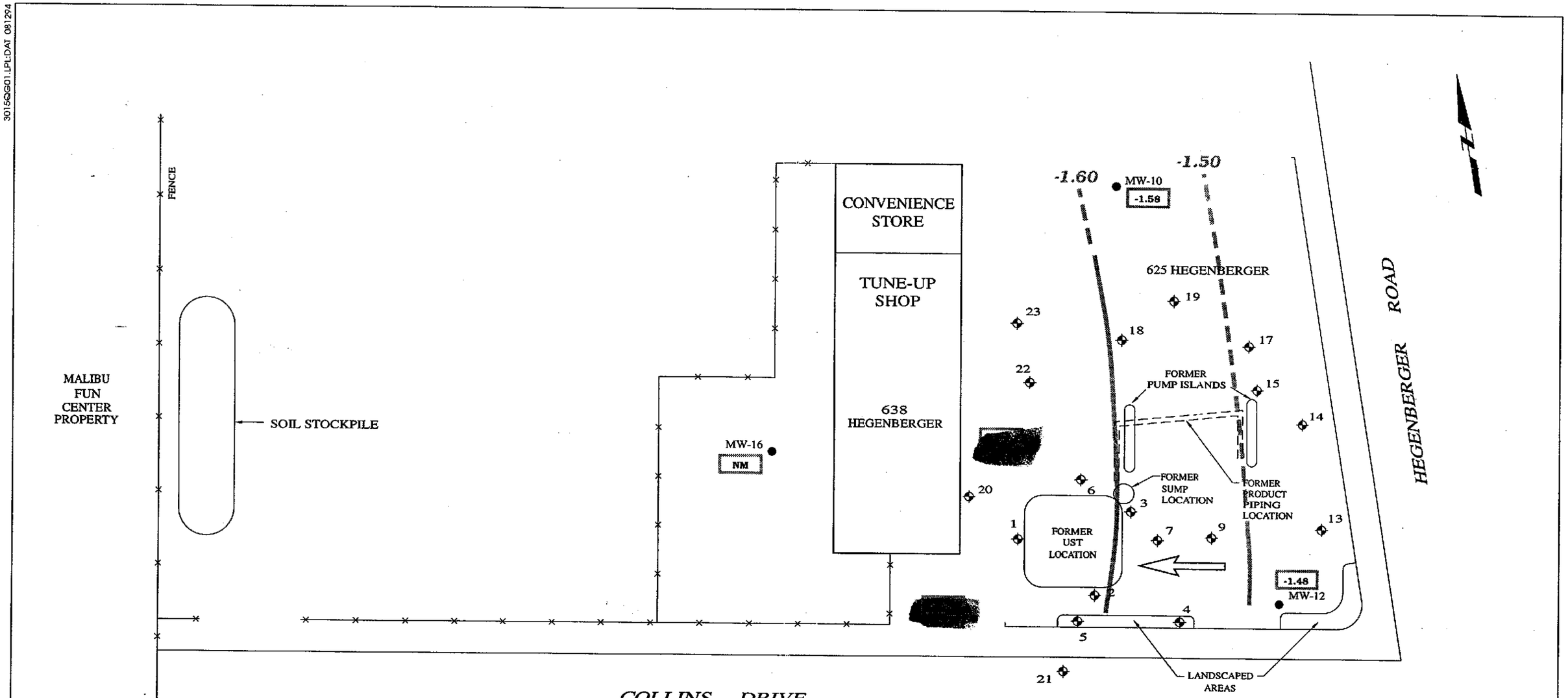
All samples collected by Subsurface Consultants were also analyzed for total lead and organic lead. Both compounds were below detection limits (detection limits unavailable), except as noted.

BDL - below detection limit; detection limit undocumented

TPHd - Total petroleum hydrocarbons as diesel
TPHg - Total petroleum hydrocarbons as gasoline
TPHo - Total petroleum hydrocarbons as oil

AEN - American Envirnmental Network, Pleasant Hill, California
HC - HartCrowser, San Francisco, California
LF - Levine-Fricke, Emeryville, California
SUB - Subsurface Consultants, Oakland, California
SUP - Superior Analytical Laboratories, Martinez, California

(1) 18 mg/l total volatile hydrocarbons also detected.
(2) 0.24 mg/l total volatile hydrocarbons also detected.
(3) 0.38 mg/l total volatile hydrocarbons also detected.
(4) A slight hydrocarbon sheen was observed on the surface of the well water.
(5) All May 1993 samples also analyzed for total organic lead (DHS Method). The compound was not detected above the detection limit of 4 mg/l.



EXPLANATION

- Approximate soil boring location installed 1988 and 1990 by Subsurface Consultants
- Approximate monitoring well location installed 1990 by Subsurface Consultants
- -1.67 Ground-water elevation (feet, mean sea level)
- -1.60 Ground-water elevation contour (feet, mean sea level)
- NM Not measured
- Estimated ground-water flow direction

0 20 40 FEET

Approximate Scale: 1" = 40'

Base Map: Subsurface Consultants, May 9, 1990

Figure 1 :

GROUND-WATER ELEVATIONS AND GRADIENT JUNE 30, 1994

Project No. 3015

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APPENDIX A

Well Sampling Sheets

WATER-LEVEL MEASUREMENTS

Project Name: Diversified Project No.: 3015.01

Field Personnel: SCH Date: 6-30-94

General Observations: Overcast

WELL NO.	WELL ELEVATION	DEPTH TO WATER MEASUREMENTS 1	DEPTH TO WATER MEASUREMENTS 2	WATER ELEVATION	REMARKS (UNITS = FEET)
MW-8		6.55			1019
MW-10		5.79			1007
MW-11		6.73			1012
MW-12		6.06			0959
MW-16		7.28			1003
MW-8		6.71			1513
MW-10		5.89			1516
MW-11		6.89			1521
MW-12		6.11			1522
MW-16		7.44			1520

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WATER-QUALITY SAMPLING INFORMATION

Project Name 625 Hegenberger/Diversified Project No. 3015.0001

Date 6/30/94 Sample No. MW-8-0694

Samplers Name SCH

Sampling Location Oakland, CA

Sampling Method Hand bail/Teflon bailer

Analyses Requested TPHg+ BTEX; TPHd, TPHo; Pb (field filtered)

Number and Types of Sample Bottles used 2 VOA/HCl; 2 amber Liter/HCl; 1 pks. 500/HNO3

Method of Shipment Courier

GROUND WATER

Well No. MW-8

Well Diameter (in.) 2

Depth to Water, Static (ft) 6.55

Water in Well Box

Well Depth (ft) 16.10

Height of Water Column in Well 9.55

Water Volume in Well 1.53 ≈ 2

SURFACE WATER

Stream Width

Stream Depth

Stream Velocity

Rained recently?

Other

(2)-inch casing = 0.16 gal/ft

4-inch casing = 0.65 gal/ft

5-inch casing = 1.02 gal/ft

6-inch casing = 1.47 gal/ft

16.10
6.55
9.55
16
5730
9550
1528
80% = .2 × 9.55 + 6.55
191
= 8.46

LOCATION MAP

TIME	DEPTH TO WATER (feet)	VOLUME WITHDRAWN (gallons)	TEMP (deg. C)	pH (S.U.)	COND (mhos/cm)	OTHER		REMARKS
1432								Start bailing
1434		2	20.1	6.80	1330			Turbid/Sl. sheen
1436		4	20.0	6.80	1849			Turbid
1439		6	21.0	6.87	2260			Turbid/stop
1443								start
1445		8	21.0	6.82	2210			Turbid/stop
1450	6.72							
1455								Sample MW-8-0694
NOTE: sample for Pb was not preserved. First filter was faulty + bottle had to be emptied + refilled.								

Suggested Method for Purging Well

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WATER-QUALITY SAMPLING INFORMATION

Project Name 625 Hegenberger/Diversified Project No. 3015.00 01

Date 6/30/94 Sample No. MW-10-0694

Samplers Name SCH

Sampling Location Oakland, CA

Sampling Method Hand bail/Teflon bailer

Analyses Requested TPHg + BTEX; TPHd, TPHo; Pb (field filtered)

Number and Types of Sample Bottles used 2 VOA/HCl; 2 amber-Liter/HCl; 1 pks 500/HNO3

Method of Shipment Courier

GROUND WATER

Well No. MW-10

Well Diameter (in.) 2

Depth to Water, Static (ft) 5.79

Water in Well Box NO

Well Depth (ft) 16.00

Height of Water Column in Well 10.21

Water Volume in Well 1.63 ≈ 2

SURFACE WATER

Stream Width

Stream Depth

Stream Velocity

Rained recently?

Other

(2)-inch casing = 0.16 gal/ft

4-inch casing = 0.65 gal/ft

5-inch casing = 1.02 gal/ft

6-inch casing = 1.47 gal/ft

16.00
5.79
1021
16
6126
10210
16336

80% = .2 × 10.21 + 5.79
2.04
7.83

LOCATION MAP

TIME	DEPTH TO WATER (feet)	VOLUME WITHDRAWN (gallons)	TEMP (deg. C)	pH (S.U.)	COND (mhos/cm)	OTHER		REMARKS
1302								start bailing
1303		2	21.8	6.89	6600			Turbid
1305		4	21.3	6.94	6680			Turbid
1309		6	21.0	6.91	6620			Turbid/stop
1314	5.90							
1320								Sample MW-10-0694

Suggested Method for Purging Well

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WATER-QUALITY SAMPLING INFORMATION

Project Name 625 Hegenberger/Diversified Project No. 3015.00-01

Date 6/30/94 Sample No. MW-11-0694

Samplers Name SCH MW-111-0694 *

Sampling Location Oakland, CA

Sampling Method Hand bail/Teflon bailer

Analyses Requested TPHg+BTEX; TPHd, TPHo; Pb (field filtered)

Number and Types of Sample Bottles used 4 VOA/HCl; 2 amber-Liter/HCl; 2 plas. 500/HNO3

Method of Shipment Courier

15.60
6.73
8.87
16
5322
887
142
80% = .2×8.87 + 6.73
177
= 8.50

GROUND WATER

Well No. MW-11

Well Diameter (in.) 2

Depth to Water, Static (ft) 6.73

Water in Well Box NO

Well Depth (ft) 15.60

Height of Water Column in Well 8.87

Water Volume in Well 1.42 ≈ 1.5

SURFACE WATER

Stream Width

Stream Depth

Stream Velocity

Rained recently ?

Other

(2)-inch casing = 0.16 gal/ft

4-inch casing = 0.65 gal/ft

5-inch casing = 1.02 gal/ft

6-inch casing = 1.47 gal/ft

LOCATION MAP

* duplicate gas/BTEX only

TIME	DEPTH TO WATER (feet)	VOLUME WITHDRAWN (gallons)	TEMP (deg. C)	pH (S.U.)	COND (mhos/cm)	OTHER		REMARKS
1336								Start bailing
1338		1.5	20.6	6.65	3160			Turbid/Sl. odor
1339	near bot.	3.0	20.4	6.78	2560			" / " / stop
~~1346~~								
1346								Start Sl. odor
1347	near bot.	4.5	20.8	6.83	2130			Turbid / stop
1355								start
1357		6.0	20.2	6.86	2040			Turbid/Sl. odor/stop
1405	7.48							
1410								Sample MW-11-0694
1430								Dup MW-111-0694

Suggested Method for Purging Well

LEVINE-FRICKE

WATER-QUALITY SAMPLING INFORMATION

Project Name 625 Hegenberger/Diversified Project No. 3015.0801

Date 6/30/94 Sample No. MW-12-0694

Samplers Name SCH MW-12-BB-0694 *

Sampling Location Oakland, CA

Sampling Method Hand bail / Teflon bailer

Analyses Requested TPHg + BTEX; TPHd, TPHo; Pb (field filtered)

Number and Types of Sample Bottles used 4 VOA/HCl; 2 amber Liter/HCl; 500 ml plts/HNO3

Method of Shipment Courier

GROUND WATER		SURFACE WATER	
Well No.	MW-12	Stream Width	
Well Diameter (in.)	2	Stream Depth	
Depth to Water, Static (ft)	6.06	Stream Velocity	
Water in Well Box		Rained recently ?	
Well Depth (ft)	16.00	Other	
Height of Water Column in Well	9.94	2-inch casing = 0.16 gal/ft	
Water Volume in Well	1.59 ≈ 2	4-inch casing = 0.65 gal/ft	
		5-inch casing = 1.02 gal/ft	
		6-inch casing = 1.47 gal/ft	

16.00
6.06
9.94
16
5964
9940
15904
80% = .2 × 9.94 + 6.06
1.99
8.05 = 8.05

LOCATION MAP

* Bailer Blank for gas/BTEX and Pb only

TIME	DEPTH TO WATER (feet)	VOLUME WITHDRAWN (gallons)	TEMP (deg. C)	pH (S.U.)	COND (mhos/cm)	OTHER		REMARKS
1015								pH, Cond. Calib.
1040								MW-12BB-0694
1052								Start bailing
1053		2	20.35	6.73	2790			Mod. Turbid
1055		4	20.6	6.76	2910			Mod. Turbid
1100		6	20.6	6.78	2880			Mod. Turbid/stop
~~1103~~								
1105								Sample MW-12-0694
1115	6.25							

Suggested Method for Purging Well _____

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WATER-QUALITY SAMPLING INFORMATION

Project Name 625 Hegenberger/Diversified Project No. 3015.00 01

Date 6/30/94 Sample No. MW-16-0694

Samplers Name SCH

Sampling Location Oakland, CA

Sampling Method Hand bail/Teflon bailer

Analyses Requested TPHg + BTEX; TPHd, TPHo; Pb (field filtered)

Number and Types of Sample Bottles used 2 VOA/HCl; 2 amber-Liter/HCl; 1 pks 500 ml/HNO3

Method of Shipment Courier

14.00
7.28
6.72
16
4032
672
10752

80% = .2 × 6.72 + 7.28
1.34
= 8.62

LOCATION MAP

GROUND WATER

Well No. MW-6

Well Diameter (in.) 2

Depth to Water, Static (ft) 7.28

Water in Well Box yes

Well Depth (ft) 14.00

Height of Water Column in Well 6.72

Water Volume in Well 1.07 ≈ 1.5

SURFACE WATER

Stream Width

Stream Depth

Stream Velocity

Rained recently?

Other

(2)-inch casing = 0.16 gal/ft

4-inch casing = 0.65 gal/ft

5-inch casing = 1.02 gal/ft

6-inch casing = 1.47 gal/ft

TIME	DEPTH TO WATER (feet)	VOLUME WITHDRAWN (gallons)	TEMP (deg. C)	pH (S.U.)	COND (mhos/cm)	OTHER		REMARKS
1134								start bailing
1135		1.5	21.5	6.83	6250			Turbid.
1136		3.0	21.6	6.81	6210			"
1140		4.5	21.8	6.80	6200			" /stop
1149	7.35							
1150								Sample MW-16-0694

Suggested Method for Purging Well

APPENDIX B

Laboratory Analysis Certificates

American Environmental Network

Certificate of Analysis

DOHS Certification: 1172 AIHA Accreditation: 11134

LEVINE-FRICKE
1900 POWELL ST. 12TH FL.
EMERYVILLE, CA 94608

REPORT DATE: 07/15/94

DATE(S) SAMPLED: 06/30/94

DATE RECEIVED: 07/01/94

AEN WORK ORDER: 9407006

ATTN: SUE HENRY
CLIENT PROJ. ID: 3015.94.01
CLIENT PROJ. NAME: DIVERSIFIED
C.O.C. NUMBER: 12252

PROJECT SUMMARY:

On July 1, 1994, this laboratory received 7 water sample(s).

Client requested samples be analyzed for inorganic and organic parameters. Sample identification, methodologies, results and dates analyzed are summarized on the following pages.

Please see quality control report for a summary of QC data pertaining to this project.

If you have any questions, please contact Client Services at (510) 930-9090.

Larry Klein
Laboratory Director

LEVINE-FRICKE

SAMPLE ID: MW-12-0694
AEN LAB NO: 9407006-01
AEN WORK ORDER: 9407006
CLIENT PROJ. ID: 3015.94.01

DATE SAMPLED: 06/30/94
DATE RECEIVED: 07/01/94
REPORT DATE: 07/15/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	07/12/94
Toluene	108-88-3	ND	0.5	ug/L	07/12/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	07/12/94
Xylenes, Total	1330-20-7	ND	2	ug/L	07/12/94
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	07/12/94
#Extraction for Diesel/Oil	EPA 3510	-		Extrn Date	07/05/94
TPH as Diesel	GC-FID	ND	0.05	mg/L	07/08/94
TPH as Oil	GC-FID	0.4 *	0.2	mg/L	07/08/94
#Digestion, Metals by ICP	EPA 3010	-		Prep Date	07/07/94
Lead	EPA 6010	ND	0.04	mg/L	07/08/94

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: MW-12BB-0694
AEN LAB NO: 9407006-02
AEN WORK ORDER: 9407006
CLIENT PROJ. ID: 3015.94.01

DATE SAMPLED: 06/30/94
DATE RECEIVED: 07/01/94
REPORT DATE: 07/15/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	ND	0.5	ug/L	07/11/94
Toluene	108-88-3	ND	0.5	ug/L	07/11/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	07/11/94
Xylenes, Total	1330-20-7	ND	2	ug/L	07/11/94
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	07/11/94
#Digestion, Metals by ICP	EPA 3010	-		Prep Date	07/07/94
Lead	EPA 6010	ND	0.04	mg/L	07/08/94

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: MW-16-0694
AEN LAB NO: 9407006-03
AEN WORK ORDER: 9407006
CLIENT PROJ. ID: 3015.94.01

DATE SAMPLED: 06/30/94
DATE RECEIVED: 07/01/94
REPORT DATE: 07/15/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	8 *	0.5	ug/L	07/11/94
Toluene	108-88-3	ND	0.5	ug/L	07/11/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	07/11/94
Xylenes, Total	1330-20-7	ND	2	ug/L	07/11/94
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	07/11/94
#Extraction for Diesel/Oil	EPA 3510	-		Extrn Date	07/05/94
TPH as Diesel	GC-FID	ND	0.05	mg/L	07/08/94
TPH as Oil	GC-FID	0.9 *	0.2	mg/L	07/08/94
#Digestion, Metals by ICP	EPA 3010	-		Prep Date	07/07/94
Lead	EPA 6010	ND	0.04	mg/L	07/08/94

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: MW-10-0694
AEN LAB NO: 9407006-04
AEN WORK ORDER: 9407006
CLIENT PROJ. ID: 3015.94.01

DATE SAMPLED: 06/30/94
DATE RECEIVED: 07/01/94
REPORT DATE: 07/15/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	ND	0.5	ug/L	07/11/94
Toluene	108-88-3	ND	0.5	ug/L	07/11/94
Ethylbenzene	100-41-4	ND	0.5	ug/L	07/11/94
Xylenes, Total	1330-20-7	ND	2	ug/L	07/11/94
Purgeable HCs as Gasoline	5030/GCFID	ND	0.05	mg/L	07/11/94
#Extraction for Diesel/Oil	**EPA 3510**	-		Extrn Date	07/05/94
TPH as Diesel	**GC-FID**	ND	0.05	mg/L	07/08/94
TPH as Oil	**GC-FID**	0.6 *	0.2	mg/L	07/08/94
#Digestion, Metals by ICP	**EPA 3010**	-		Prep Date	07/07/94
Lead	**EPA 6010**	ND	0.04	mg/L	07/08/94

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: MW-11-0694
AEN LAB NO: 9407006-05
AEN WORK ORDER: 9407006
CLIENT PROJ. ID: 3015.94.01

DATE SAMPLED: 06/30/94
DATE RECEIVED: 07/01/94
REPORT DATE: 07/15/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	1,500 *	0.5	ug/L	07/12/94
Toluene	108-88-3	13 *	0.5	ug/L	07/12/94
Ethylbenzene	100-41-4	690 *	0.5	ug/L	07/12/94
Xylenes, Total	1330-20-7	1,200 *	2	ug/L	07/12/94
Purgeable HCs as Gasoline	5030/GCFID	8.8 *	0.05	mg/L	07/12/94
#Extraction for Diesel/Oil	EPA 3510	-		Extrn Date	07/05/94
TPH as Diesel	GC-FID	ND	0.05	mg/L	07/08/94
TPH as Oil	GC-FID	1.1 *	0.2	mg/L	07/08/94
#Digestion, Metals by ICP	EPA 3010	-		Prep Date	07/07/94
Lead	EPA 6010	ND	0.04	mg/L	07/08/94

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: MW-111-0694
AEN LAB NO: 9407006-06
AEN WORK ORDER: 9407006
CLIENT PROJ. ID: 3015.94.01

DATE SAMPLED: 06/30/94
DATE RECEIVED: 07/01/94
REPORT DATE: 07/15/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	EPA 8020				
Benzene	71-43-2	1,700 *	0.5	ug/L	07/11/94
Toluene	108-88-3	14 *	0.5	ug/L	07/11/94
Ethylbenzene	100-41-4	730 *	0.5	ug/L	07/11/94
Xylenes, Total	1330-20-7	1,300 *	2	ug/L	07/11/94
Purgeable HCs as Gasoline	5030/GCFID	9.7 *	0.05	mg/L	07/11/94

ND = Not detected at or above the reporting limit
* = Value above reporting limit

LEVINE-FRICKE

SAMPLE ID: MW-8-0694
AEN LAB NO: 9407006-07
AEN WORK ORDER: 9407006
CLIENT PROJ. ID: 3015.94.01

DATE SAMPLED: 06/30/94
DATE RECEIVED: 07/01/94
REPORT DATE: 07/15/94

ANALYTE	METHOD/ CAS#	RESULT	REPORTING LIMIT	UNITS	DATE ANALYZED
BTEX & Gasoline HCs	**EPA 8020**				
Benzene	71-43-2	11,000 *	0.5	ug/L	07/12/94
Toluene	108-88-3	4,800 *	0.5	ug/L	07/12/94
Ethylbenzene	100-41-4	2,200 *	0.5	ug/L	07/12/94
Xylenes, Total	1330-20-7	8,200 *	2	ug/L	07/12/94
Purgeable HCs as Gasoline	5030/GCFID	41 *	0.05	mg/L	07/12/94
#Extraction for Diesel/Oil	**EPA 3510**	-		Extrn Date	07/05/94
TPH as Diesel	**GC-FID**	ND	0.05	mg/L	07/08/94
TPH as Oil	**GC-FID**	0.5 *	0.2	mg/L	07/08/94
#Digestion, Metals by ICP	**EPA 3010**	-		Prep Date	07/07/94
Lead	**EPA 6010**	ND	0.04	mg/L	07/08/94

ND = Not detected at or above the reporting limit
* = Value above reporting limit

AEN (CALIFORNIA)
QUALITY CONTROL REPORT

AEN JOB NUMBER: 9407006

CLIENT PROJECT ID: 3015.94.01

Quality Control Summary

All laboratory quality control parameters were found to be within established limits.

Definitions

The following abbreviations are found throughout the QC report:

ND = Not Detected at or above the reporting limit
RPD = Relative Percent Difference
< = Less Than

QUALITY CONTROL DATA

DATE EXTRACTED: 07/05/94 AEN JOB NO: 9407006

CLIENT PROJ. ID: 3015.94.01 INSTRUMENT: C

SURROGATE STANDARD RECOVERY SUMMARY
METHOD: EPA 3510 GCFID
(WATER MATRIX)

SAMPLE IDENTIFICATION			SURROGATE RECOVERY (PERCENT)
Date Analyzed	Sample Id.	Lab Id.	n-Pentacosane
07/08/94	MW-12-0694	01	77
07/08/94	MW-16-0694	03	49
07/08/94	MW-10-0694	04	54
07/08/94	MW-11-0694	05	79
07/08/94	MW-8-0694	07	76

CURRENT QC LIMITS

ANALYTE	PERCENT RECOVERY
n-Pentacosane	(30-120)

QUALITY CONTROL DATA

DATE EXTRACTED: 07/05/94
DATE ANALYZED: 07/06/94
CLIENT PROJ. ID: 3015.94.01

AEN JOB NO: 9407006
SAMPLE SPIKED: DI WATER
INSTRUMENT: C

METHOD SPIKE RECOVERY SUMMARY
TPH EXTRACTABLE WATER
METHOD: EPA 3510 GCFID

ANALYTE	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits Percent Recovery	QC Limits RPD
Diesel	2.09	88	<1	65-103	12

METHOD BLANK RESULT

Lab Id.	Extractable Hydrocarbons as Diesel (mg/L)	Extractable Hydrocarbons as Oil (mg/L)
070594-METHOD BLANK	ND	ND
Reporting Limit	0.05	0.2

QUALITY CONTROL DATA

INSTRUMENT: F

CLIENT PROJ. ID: 3015.94.01

AEN JOB NO: 9407006
AEN LAB NO: 0711-BLANK
DATE ANALYZED: 07/11/94

BTEX AND HYDROCARBONS
METHOD: EPA 8020, 5030 GCFID
(WATER MATRIX)

	CAS #	CONCENTRATION (ug/L)	REPORTING LIMIT (ug/L)
Benzene	71-43-2	ND	0.5
Toluene	108-88-3	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
Xylenes, Total	1330-20-7	ND	2
PURGEABLE HYDROCARBONS AS:			
Gasoline		ND mg/L	0.05 mg/L

QUALITY CONTROL DATA

INSTRUMENT: F

CLIENT PROJ. ID: 3015.94.01

AEN JOB NO: 9407006
AEN LAB NO: 0712-BLANK
DATE ANALYZED: 07/12/94

BTEX AND HYDROCARBONS
METHOD: EPA 8020, 5030 GCFID
(WATER MATRIX)

	CAS #	CONCENTRATION (ug/L)	REPORTING LIMIT (ug/L)
Benzene	71-43-2	ND	0.5
Toluene	108-88-3	ND	0.5
Ethylbenzene	100-41-4	ND	0.5
Xylenes, Total	1330-20-7	ND	2
PURGEABLE HYDROCARBONS AS:			
Gasoline		ND mg/L	0.05 mg/L

QUALITY CONTROL DATA

CLIENT PROJ. ID: 3015.94.01

AEN JOB NO: 9407006

INSTRUMENT: F

SURROGATE STANDARD RECOVERY SUMMARY
METHOD: EPA 8020, 5030 GCFID
(WATER MATRIX)

Date Analyzed	SAMPLE IDENTIFICATION		SURROGATE RECOVERY (PERCENT)
	Sample Id.	Lab Id.	Fluorobenzene
07/12/94	MW-12-0694	01	94
07/11/94	MW-12BB-0694	02	97
07/11/94	MW-16-0694	03	91
07/11/94	MW-10-0694	04	95
07/12/94	MW-11-0694	05	96
07/11/94	MW-111-0694	06	96
07/12/94	MW-8-0694	07	100

CURRENT QC LIMITS

ANALYTE	PERCENT RECOVERY
Fluorobenzene	(70-115)

QUALITY CONTROL DATA

DATE ANALYZED: 07/11/94
SAMPLE SPIKED: 9407004-02
CLIENT PROJ. ID: 3015.94.01

AEN JOB NO: 9407006
INSTRUMENT: F

MATRIX SPIKE RECOVERY SUMMARY
METHOD: EPA 8020, 5030 GCFID
(WATER MATRIX)

ANALYTE	Spike Added (ug/L)	Average Percent Recovery	RPD
Benzene	10.6	94	2
Toluene	40.2	96	7
Hydrocarbons as Gasoline	500	89	2

CURRENT QC LIMITS

Analyte	Percent Recovery	RPD
Benzene	(81-115)	10
Toluene	(85-112)	9
Gasoline	(72-119)	12

QUALITY CONTROL DATA

MATRIX: WATER

AEN JOB NO: 9407006

CLIENT PROJ. ID: 3015.94.01

DATE ANALYZED: 07/08/94

MATRIX SPIKE RECOVERY SUMMARY

Compound	Inst./ Method	Sample Spiked	Sample Result (mg/L)	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits % Rec. Limit	QC Limits RPD Limit
Pb, Lead	ICP/6010	9407006-02	ND	0.5	99	1	80-115	7

METHOD SPIKE AND BLANK RECOVERY SUMMARY

Compound	Inst./ Method	Blank Result (mg/L)	Spike Added (mg/L)	Average Percent Recovery	RPD	QC Limits % Rec. Limit	QC Limits RPD Limit
Pb, Lead	ICP/6010	ND	0.5	100	<1	87-119	7

*** END OF REPORT ***

CHAIN OF CUSTODY / ANALYSES REQUEST FORM

9407006

Project No.: 3015.94.01	Field Logbook No.:	Date: 6.30.94	Serial No.: № 12252
Project Name: Diversified	Project Location: Oakland, CA		
Sampler (Signature): Prescott C. Arnold			Samplers: SCH

SAMPLES						ANALYSES							
SAMPLE NO.	DATE	TIME	LAB SAMPLE NO.	NO. OF CONTAINERS	SAMPLE TYPE	EPA 601	EPA 624	TPHg/BTEX	TPHd/TPHo	Pb	HOLD	RUSH	REMARKS
MW-12-0694	6.30.94	1105	01A-E	5	H_2O			2	2	1			Contact Sue Henry
MW-12BB-0694		1040	02A-C	3				2		1			
MW-16-0694		1150	03A-E	5				2	2	1			Normal TAT
MW-10-0694		1320	04A-E	5				2	2	1			
MW-11-0694		1410	05A-E	5				2	2	1			
MW-111-0694		1430	06A-E	~~3~~ 5				2		1	X		Please put the Lead sample for MW-111-0694 on Hold. The gas/BTEX sample is to be analyzed
MW-8-0694	↓	1455	07A-E	5	↓			2	2	1			Samples for Pb have been field filtered. Pb sample for MW-8-0694 was not preserved; all others were.

RELINQUISHED BY: (Signature) Prescott C. Arnold	DATE 7/1	TIME 13:00	RECEIVED BY: (Signature) Michael E McNulty	DATE 7/1	TIME 13:00
RELINQUISHED BY: (Signature) Michael E McNulty	DATE 7/1/94	TIME 13:45	RECEIVED BY: (Signature) Gina Gillespie	DATE 7-1-94	TIME 1345
RELINQUISHED BY: (Signature)	DATE	TIME	RECEIVED BY: (Signature)	DATE	TIME
METHOD OF SHIPMENT: Courier	DATE	TIME	LAB COMMENTS:		

Sample Collector:
LEVINE-FRICKE
1900 Powell Street, 12th Floor
Emeryville, California 94608
(510) 652-4500

Analytical Laboratory:
AEN, Pleasant Hill, CA

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